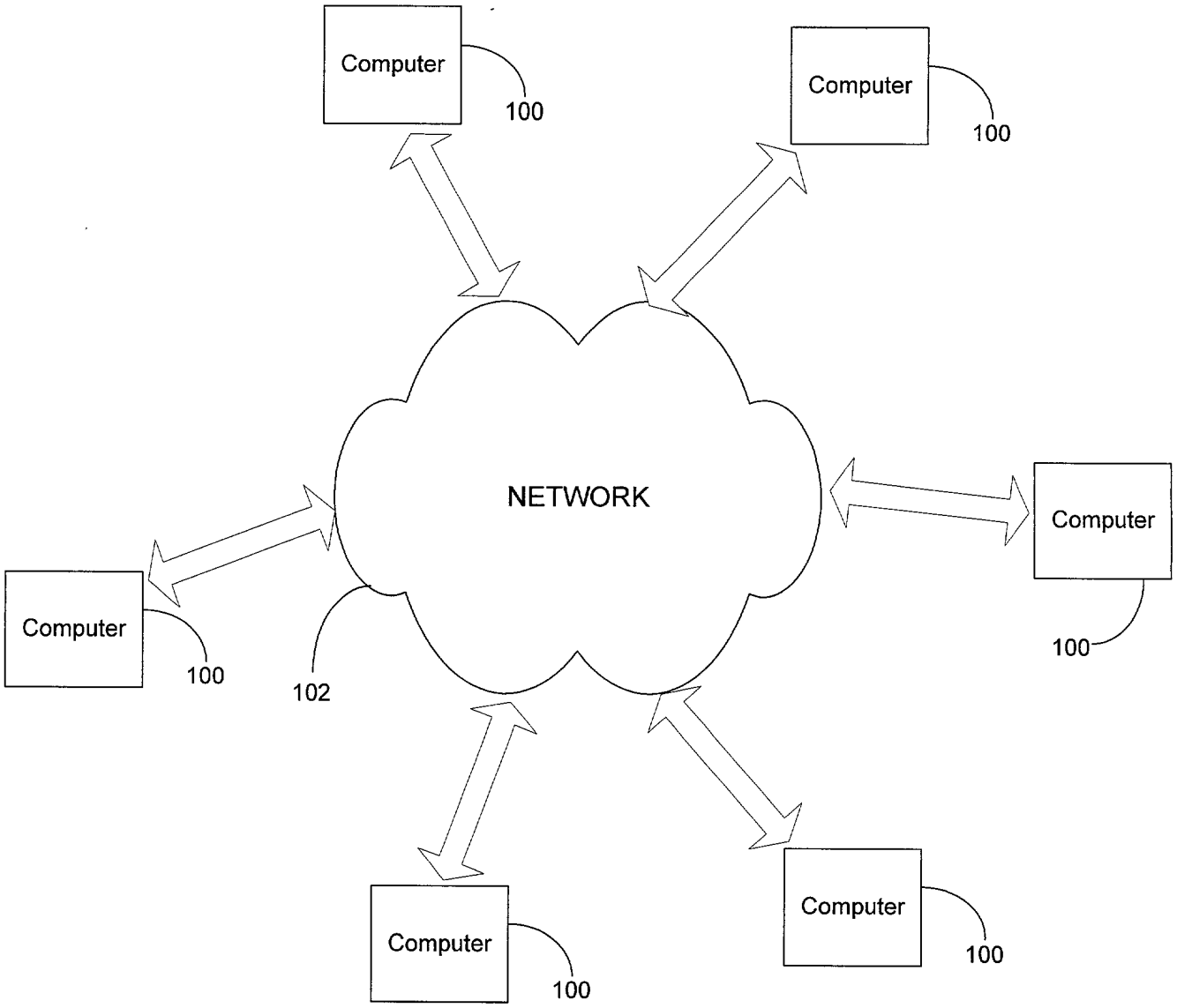

Computer
100
Computer
100
NETWORK
Computer
100
Computer
100
102
Computer
100
Computer
100

FIG. 1

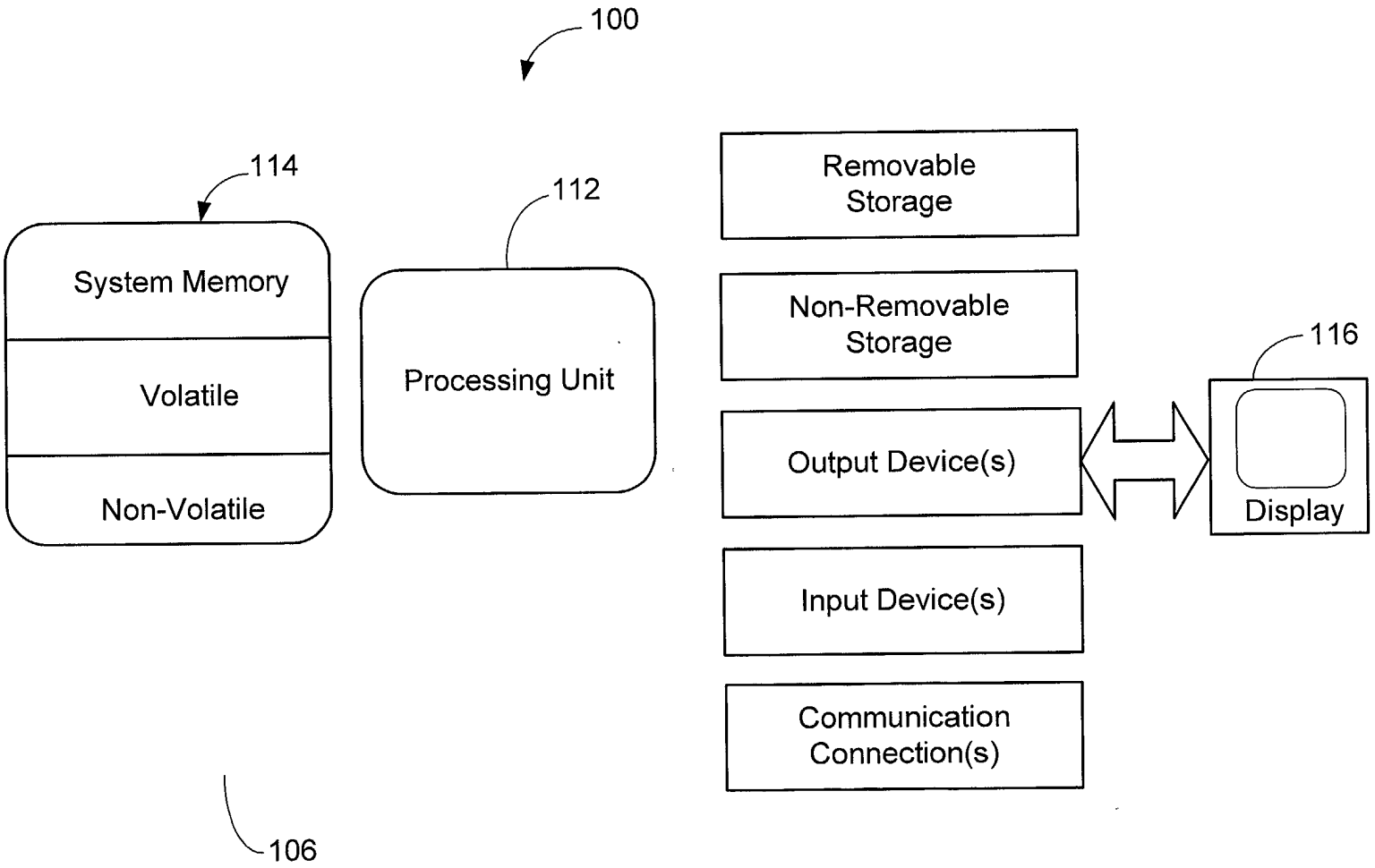
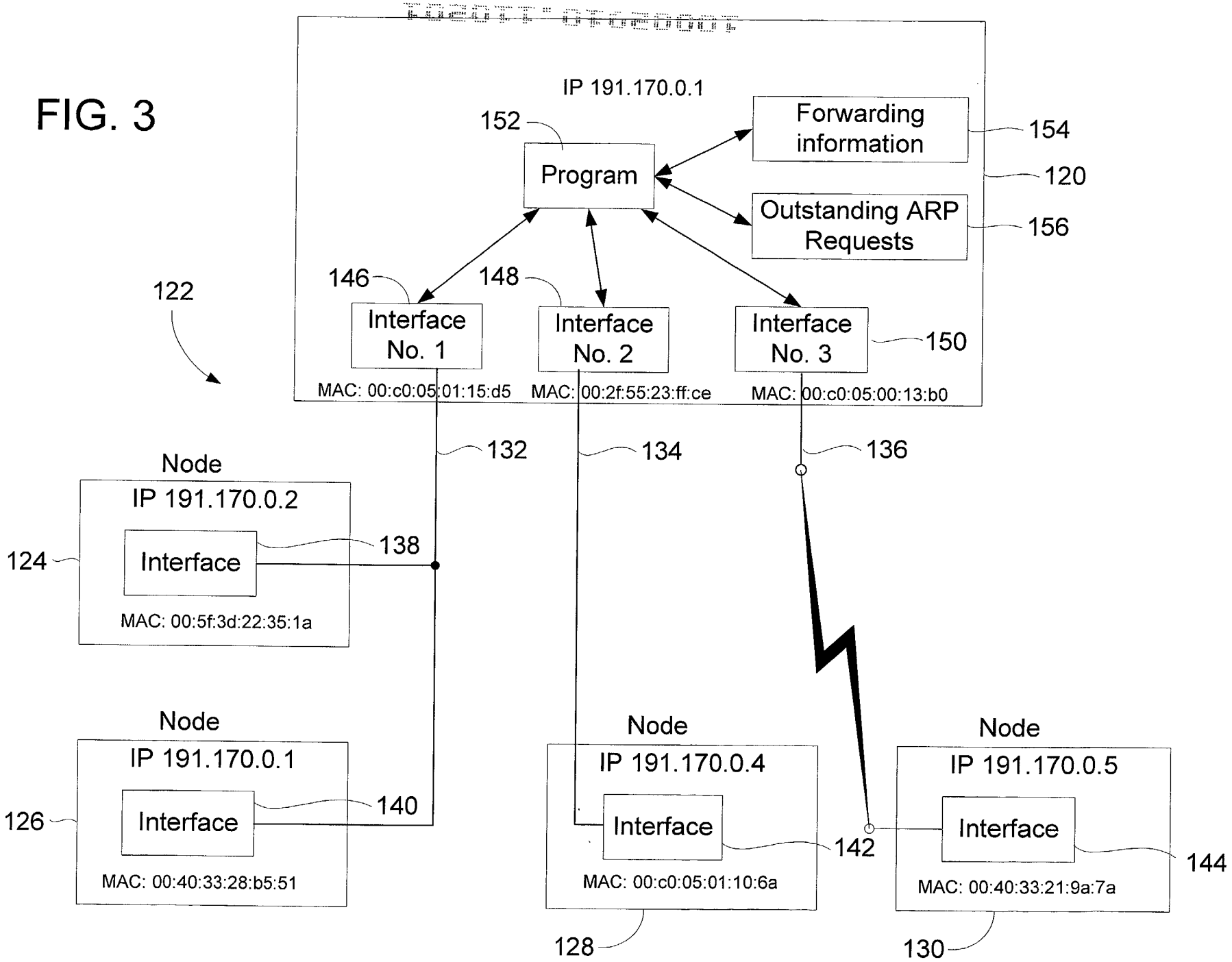

100
114
112
System Memory
Volatile
Non-Volatile
Processing Unit
Removable Storage
Non-Removable Storage
Output Device(s)
116
Display
Input Device(s)
Communication Connection(s)
106

FIG. 2

FIG. 3


IP 191.170.0.1
152
Program
Forwarding information
154
120
Outstanding ARP Requests
156
146
148
122
Interface No. 1
Interface No. 2
Interface No. 3
150
MAC: 00:c0:05:01:15:d5
MAC: 00:2f:55:23:ff:ce
MAC: 00:c0:05:00:13:b0
132
134
136
Node
IP 191.170.0.2
124
Interface
138
MAC: 00:5f:3d:22:35:1a
Node
IP 191.170.0.1
126
Interface
140
MAC: 00:40:33:28:b5:51
Node
IP 191.170.0.4
Interface
142
MAC: 00:c0:05:01:10:6a
128
Node
IP 191.170.0.5
Interface
144
MAC: 00:40:33:21:9a:7a
130

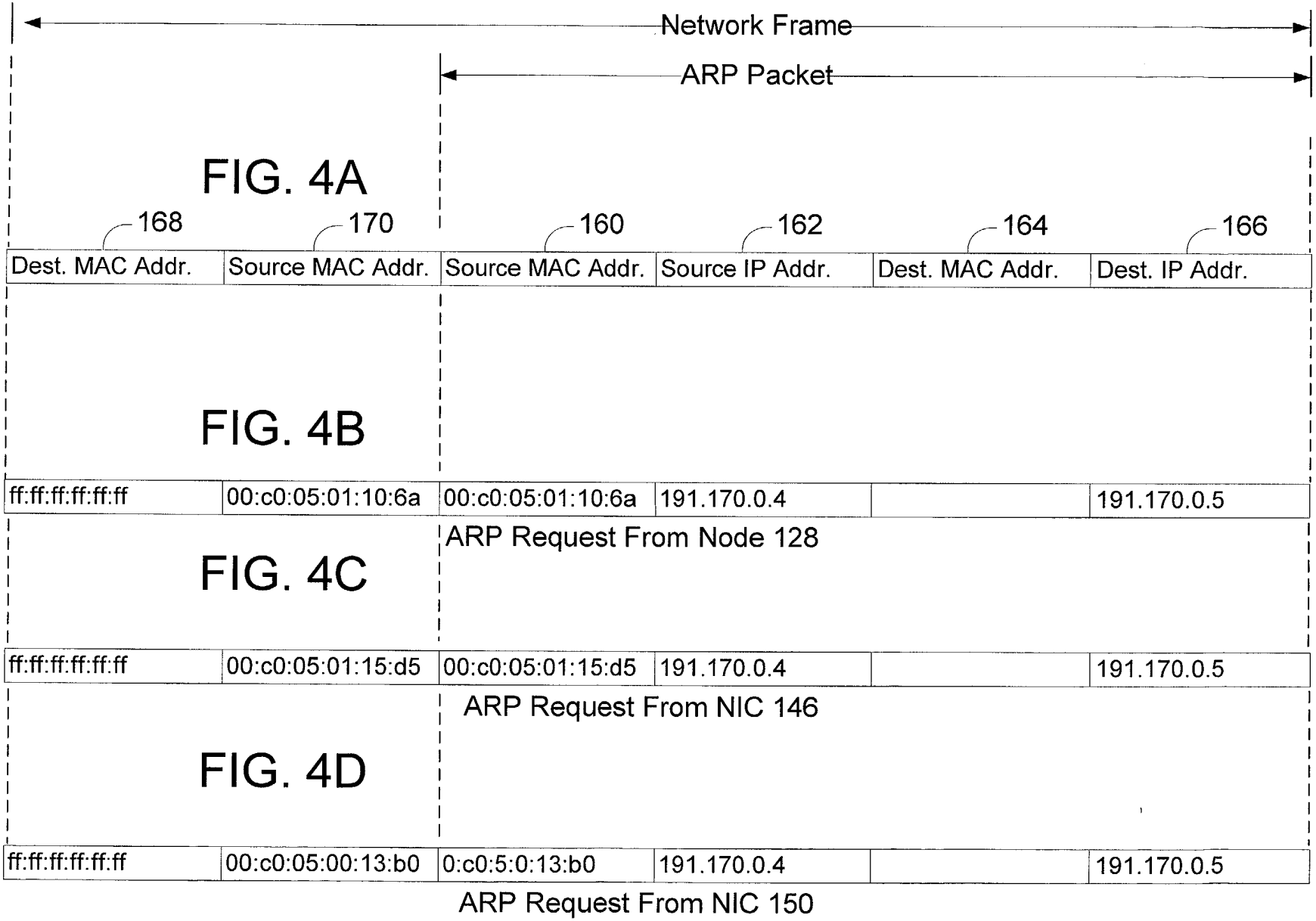


FIG. 4A

FIG. 4B

FIG. 4C

FIG. 4D

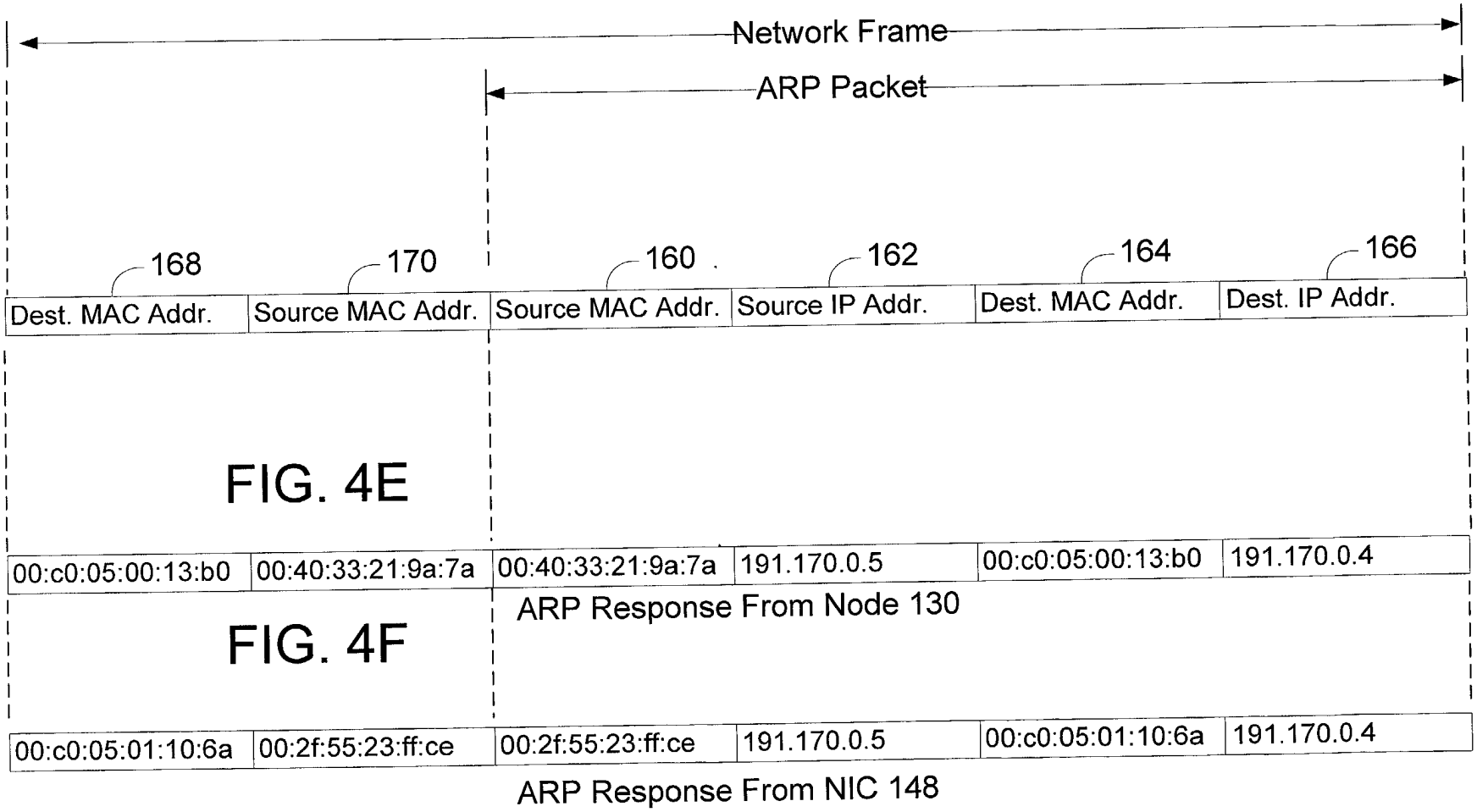
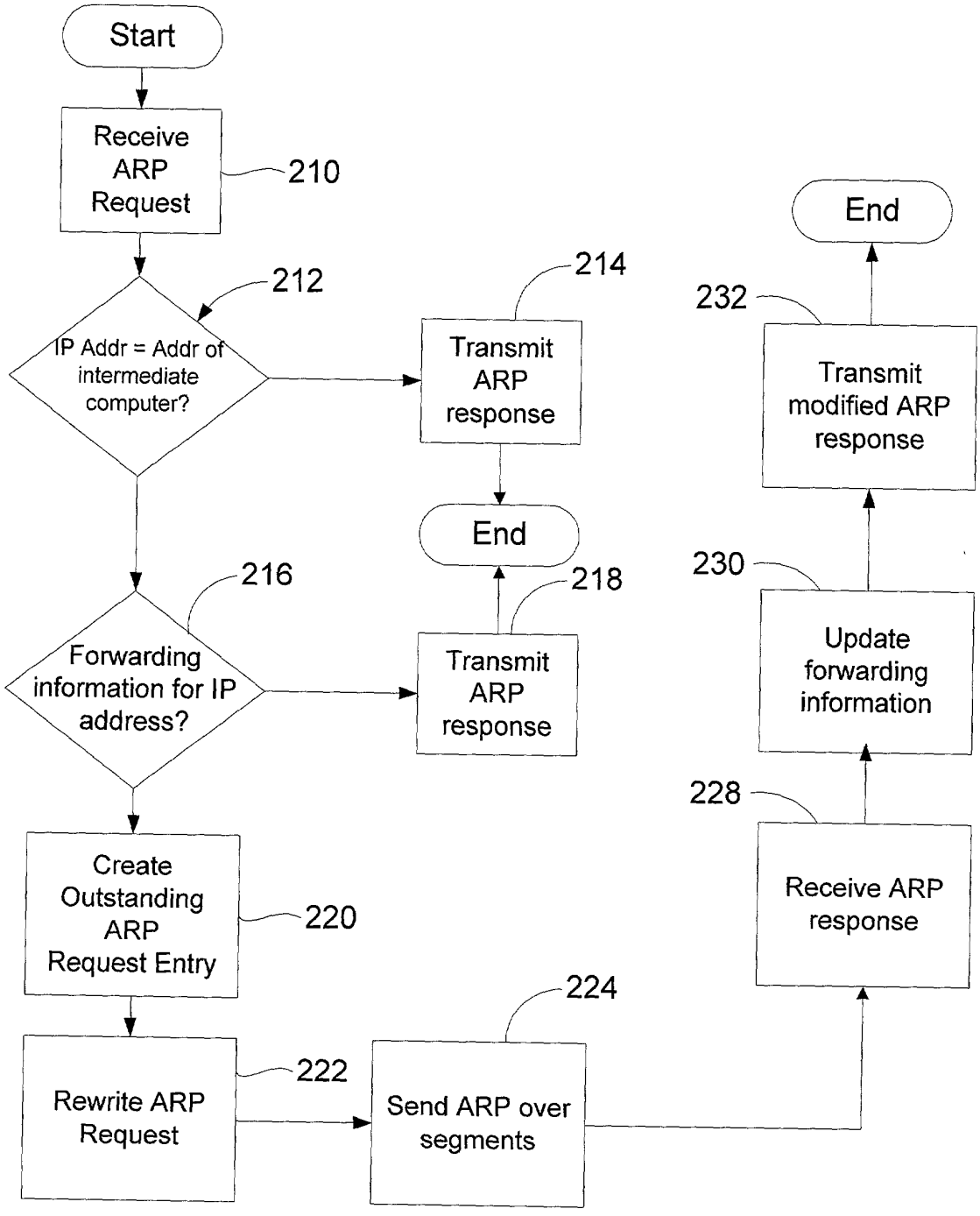

Network Frame
ARP Packet
168
170
160
162
164
166
Dest. MAC Addr.
Source MAC Addr.
Source MAC Addr.
Source IP Addr.
Dest. MAC Addr.
Dest. IP Addr.
00:c0:05:00:13:b0
00:40:33:21:9a:7a
00:40:33:21:9a:7a
191.170.0.5
00:c0:05:00:13:b0
191.170.0.4
ARP Response From Node 130
00:c0:05:01:10:6a
00:2f:55:23:ff:ce
00:2f:55:23:ff:ce
191.170.0.5
00:c0:05:01:10:6a
191.170.0.4
ARP Response From NIC 148

FIG. 4E

FIG. 4F

FIG. 5


Start
Receive ARP Request
210
IP Addr = Addr of intermediate computer?
212
Transmit ARP response
214
End
Forwarding information for IP address?
216
Transmit ARP response
218
Create Outstanding ARP Request Entry
220
Rewrite ARP Request
222
Send ARP over segments
224
Receive ARP response
228
Update forwarding information
230
Transmit modified ARP response
232
End